



## Scientific Enquiry Skill Progression 2025-2026

<b>SCIENTIFIC ENQUIRY</b>		<b>OBSERVING</b>								
		<b>PRE SCHOOL</b>	<b>NURSERY</b>	<b>RECEPTION</b>	<b>YEAR 1</b>	<b>YEAR 2</b>	<b>YEAR 3</b>	<b>YEAR 4</b>	<b>YEAR 5</b>	<b>YEAR 6</b>
		<b>QUALITATIVE AND SIMPLE QUANTITATIVE</b>		<b>QUALITATIVE AND QUANTITATIVE</b>			<b>QUALITATIVE AND QUANTITATIVE</b>			
		Repeat actions that have an effect.  Explore materials with different properties.  Explore natural materials, indoors and outside.  Explore and respond to different natural phenomena in their setting and on trips.	Use all their senses in hands-on exploration of natural materials.  Explore collections of materials with similar and/or different properties.  Talk about what they see, using a wide vocabulary  Explore how things work.  Plant seeds	Explore the natural world around them.  Describe what they see, hear and feel whilst outside.  Recognise some environments that are different to the one in which they live.  Understand the effect of changing	Observe a tree through the year. Observe a trail/patch to identify how plants change through the year Observe animals in the local environment throughout the year Use senses and equipment. Take weather measurements and make observations over time. Record/Photograph clothing worn across year (jumper, coat, hats, scarves, etc.) Make observations of daylight hours.	Explore animals in micro-habitats throughout the year Explore plants in micro-habitats throughout the year Plant seeds and bulbs and observe how they grow. Observe a life cycle (e.g. caterpillars, chicks, farm animals). Observe how their body changes during/after exercise. Measure and observe change over time e.g., plant growth. Select equipment.	Systematic/ careful observations. Use bar charts, pictograms, tables.  Observe how soil separates into different layers in water	Accurate measurements. Use time graphs and other graphs.  Observe living things in their local environment at different times of the year Observe changes over time such as ice melting (ice hands), wet hand prints dry or watch frozen liquids melt	Accurate/ precise measurements, Diagrams, tables, bar and line graphs. Observe rusting with uncoated nails in different liquids Grow from cuttings and observe whether they grow Grow from, and harvest, bulbs through the year Observe plants through the year. Measure shadows throughout the day.	Take repeat readings when appropriate. Scatter graphs.  Observe pulse rates before, during and after exercise

**EYFS –**  
Understanding the World

- Topic based key skills and knowledge:**
- Explore the natural world around them
  - Describe what they see, hear and feel whilst outside
  - Recognise some environments that are different to the one in which they live
  - Understand the effect of changing seasons on the natural world around them
- ELG:**
- Describe their immediate environment using knowledge from observation, discussion, stories, non-fiction texts and maps.
  - Explore the natural world around them, making observations and drawing pictures of animals and plants.
  - Know some similarities and differences between the natural world around them and contrasting environments, drawing on their experiences and what has been read in class.
  - Understand some important processes and changes in the natural world around them, including the seasons and changing states of matter



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CLASSIFYING		CLASSIFYING								
		<p>Make connections between the features of their family and other families.</p> <p>Notice differences between people</p>	<p>and care for growing plants.</p> <p>Understand the key features of the life cycle of a plant and an animal.</p> <p>Begin to understand the need to respect and care for the natural environment and all living things.</p> <p>Explore and talk about different forces they can feel.</p> <p>Talk about the differences between materials and changes they notice.</p>	<p>seasons on the natural world around them.</p>	<p>Classify leaves, flowers, and seeds, choosing their own criteria</p> <p>Classify animals they have seen/have first-hand experience of, choosing their own criteria to do so.</p> <p>Classify animals based on physical structure.</p> <p>Classify animals they have first-hand experience of based on what they eat.</p> <p>Classify objects made from the same material and objects made from different materials</p> <p>Classify fabrics based on texture.</p> <p>Classify paper/plastics/fabrics.</p> <p>Compare differences</p>	<p>Find things that are living, dead and never been alive.</p> <p>Classify things found in the environment (choosing their own criteria to do so), leading to living, dead and never been alive.</p> <p>Classify minibeasts found in the environment based on physical structure.</p> <p>Classify plants found in the environment.</p> <p>Classify seeds and bulbs based on their own criteria</p> <p>Classify food items and animals based on their own criteria</p> <p>Based on their own criteria, classify materials</p> <p>Compare differences</p>	<p>Classify animals/materials. Link two variables e.g., <i>the closer the magnet the bigger the force.</i></p> <p>Classify flowers based on the children's own criteria</p> <p>Classify food items (leading to sorting by nutrients) and animals (leading to sorting by whether or not they have skeletons) based on their own criteria</p> <p>Classify rocks based on child's own criteria (appearance and properties)</p> <p>Look at different soils and discuss how they are similar/different.</p> <p>Classify materials and light sources based on child's own criteria</p> <p>Sort materials (leading towards metal/non-metal and magnetic/not magnetic) and toys (leading to what makes them move e.g. push/pull).</p>	<p>Link two variables e.g. <i>the more cells in a circuit, the brighter the bulb.</i></p> <p>Classify a number of living things in their local environment and in the wider environment after completing research</p> <p>Compare and contrast different types of teeth (linking to simple functions).</p> <p>Classify jaw bones/teeth to aid with making food chains e.g., recognise what eats plants and what eats animals by looking at their teeth.</p> <p>Branching databases/dichotomous keys.</p> <p>Use simple classification keys.</p> <p>Classify solids and liquids based on child's own criteria (e.g., physical properties)</p> <p>Based on the children's own criteria, sort musical instruments</p> <p>Classify household appliances and/or toys (leading to electrical/not electrical, batteries/mains).</p> <p>Test materials to classify into insulators and conductors.</p>	<p>Use complex classification keys.</p> <p>Identify causal relationships.</p> <p>Classify animals according to their life cycle</p> <p>Classify the materials themselves e.g., samples of wood, metal, plastic, etc.</p> <p>After observing what happens when solids are added to liquids, classify materials based on the outcomes.</p>	<p>Classify animals according to Carl Linnaeus' system.</p> <p>Classify plants into flowering, mosses, ferns and conifers, based on specific characteristics.</p> <p>Create a branching database/dichotomous key to classify a set of living things</p> <p>Show a variation in a species including a species of animal e.g., <i>cats, dogs</i> and a species of plant e.g., <i>daffodils, tulips, lilies</i></p>



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PATTERN SEEKING	
PATTERN SEEKING	<p>Based on observations, identify patterns e.g., after comparing the size of leaves on different plants, children may suggest "bigger plants have bigger leaves."</p> <p>Children generate questions for investigation  <i>At the end of the year, look for patterns in evidence e.g. Does it rain more in spring? Do we have more sunny days in the summer? Which was the coldest month?</i></p> <p>Children generate questions for investigation  <i>Are there more daisies in the meadow or on the field?            Where do you see more ivy?            Does it matter which way round you plant a bulb or seed?            Do big seeds germinate more quickly?            What if plants do not get light and water?</i></p> <p>Investigate what happens when conditions are changed e.g., more/less light/water, change in temperature</p> <p>Children generate questions for investigation e.g.,  <i>Do 'healthy' drinks have less sugar?            Do people with long arms throw further?</i></p> <p>Children generate questions for classification and identifying patterns.            E.g.,  <i>Do animals with .... have ....?            Do plants with .... have ....?            What materials are good conductors?</i></p> <p>Children generate questions such as:  <i>Do larger mammals have longer gestation periods?            Do larger animals live longer?            Do smaller animals lay more eggs?</i></p> <p>Children generate questions for investigation such as:  <i>Do older people have lower pulse rates?            Do boys have higher pulse rates?            Generate questions to research about the human circulatory system.            Use different pieces of equipment, e.g., chopsticks, toothpicks, cutlery, to look for patterns linking the suitability of bird beaks for the available food e.g. rice, grapes, raisins</i></p>
SIMPLE COMPARATIVE TESTS	
COMPARATIVE AND FAIR TESTING	
COMPARATIVE AND FAIR TESTS	
DESIGN OWN COMPARATIVE AND FAIR TESTS	
COMPARATIVE AND FAIR TESTING	<p>Test objects made of different materials to see how effective they are e.g., <i>What is the best material for an umbrella?</i></p> <p><i>Can I taste the difference between different flavoured crisps/skittles/smarties?</i></p> <p>Test materials for different uses - e.g., <i>Which materials are best for Cinderella's mop? Which fabric would you choose for Elastigirl's costume?</i></p> <p>Test the hardness of different rocks.            Test what happens when rocks are put in water.            Test how quickly water runs through different types of soil            Predict - Fair tests e.g. <i>How does distance affect magnet strength?</i>            Test materials for reflectiveness and transparency.</p> <p><b>Predict.</b> Language of independent and control variable.            Test the changes in states of matter such as:  <i>What affects the melting rate of chocolate (size of pieces, temperature of water, type of chocolate)?            What affects the rate an 'ice pole' melts?            What affects the rate of evaporation?</i></p> <p>Identify when and how to use tests.            Recognise and control variables.            Make predictions based on previous test results.            Conduct comparative and fair testing            Test solids for solubility.            Compare rates of solubility.</p> <p>Complete different activities to compare the impact on their own heart rate            Investigate the shape of shadows and link this to light travelling in straight lines            Investigate the effect of adding components to electrical circuits e.g., bulbs, cells, buzzers, motors</p>



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							<p>Investigate shadows (size of shadows, shape of shadows).          Test how objects move on different surfaces          Test the strength of different magnets.</p>	<p>Test the 'runniness' of liquids          Measure volume from different instruments and how volume changes away from a source.          Investigate string telephones.          Explore pitch e.g., through a carousel of activities using milk bottles, straw pipes, rulers, elastic band guitars          Test materials to classify into insulators and conductors.</p>	<p><i>Which material would be good for a tent?</i>  <i>Which material would be good for a bag for different purposes?</i>          Compare friction e.g., trainers or weighted match box pulled with force meter          Compare water resistance e.g., boats in a gutter of water, plasticine in a cylinder of liquid          Compare air resistance e.g., spinners, parachutes          Compare levers, pulleys and gears</p>	
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## Scientific Enquiry Skill Progression 2025-2026

<b>RESEARCHING</b>	<p><b>Listen and respond to stories</b> about scientific processes/ events/ objects.</p> <p>Explore the natural world around them and how things work</p> <p>Talk about what they see, using a wide vocabulary</p>	<p><b>Find information</b> using given sources. e.g., <i>animals</i>. Use secondary sources to name plants (including trees) based on observations of leaves, seeds, flowers, buds, and bark.</p>	<p><b>Select information</b> from a range of given sources. Use secondary sources to name plants and animals seen in the local environment that they may not currently be able to name Research what animals they have first-hand experience of eat Look at packets to decide how to plant and care for seeds e.g. How much water do they need? Do they need shade/full sun?</p>	<p><b>Research</b> using given sources. e.g., <i>research different food groups and how they keep us healthy</i> Research the functions of the parts of flowering plants. Find out how magnets are used in everyday life Research different methods of seed dispersal and pollination Look at food packaging to identify the amount of nutrients in different food items. Research which types of food contain which nutrients. Investigate how fossils are formed. Generate questions to research about the human skeleton</p>	<p><b>Select information</b> to support findings. e.g., <i>research animals</i> Research the different parts of the digestive system Research what different animals eat within a specific environment, e.g., coral, polar, African grasslands, in order to construct food chains. Research and be able to name plants and animals in the wider environment e.g., polar, desert, jungle, etc. Research global environmental issues and their impact on living things. Research the melting point of metals Research the water cycle.</p>	<p>Generate questions to research about the Earth and space. Generate questions to research the life cycle of a chosen animal: mammal, amphibian, insect, bird e.g., dragon fly, cuckoo, salmon, worm, owl. (Children present what they've learned in different ways: create a model, write a song, create a PPT, etc.) Develop questions to ask an expert e.g., a health visitor, doctor or nurse. Research how gardeners asexually reproduce plants Research Heath Robinson and Rube Goldberg machines. Explore how scientific ideas have developed over time.</p>	<p>Research the characteristics of a vertebrate/invertebrate group. Generate questions to research about the human circulatory system. (Children present what they've learned in different ways: create a model, write a song, write a story, create a PPT, etc.) Research the characteristics of flowering plants, mosses, ferns and conifers. Research the difference between bacteria, virus and fungi to give reasons why these are not plants or animals. Research how micro-organisms can be helpful or harmful. Research unusual animals e.g., <i>axolotl, platypus, kangaroos</i> Research different types of a species and their characteristics making them suitable for different habitats e.g., <i>penguins</i>.</p>
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<b>MODELS</b>	<p><b>Concrete</b> context.</p> <p>Create drawings and models of their environment</p>	<p><b>Concrete</b> context</p> <p>Draw diagrams e.g. <i>parts of plants/ the body.</i></p>	<p><b>Explore</b> and <b>create</b></p> <p>drawings and physical models e.g. <i>habitats.</i></p>	<p><b>Abstract</b> contexts e.g. processes and phenomena such as forces/ light. <b>Use</b> labelled diagrams and drawings and physical models.</p>	<p><b>Abstract</b> contexts e.g. processes and phenomena such as sound/ electricity. <b>Create</b> labelled diagrams and drawings and physical models.</p>	<p><b>Abstract</b> contexts.</p> <p><b>Evaluate</b> diagrams/ models e.g. states of matter; solar system.</p>	<p><b>Abstract</b> contexts.</p> <p><b>Create</b> own versions of models. e.g. circulatory system; light.</p>
<b>CONCLUDING</b>	<p><b>Explain</b> simple phenomena: How? Why?</p>	<p><b>Describe</b> what has happened or been observed.</p>	<p><b>Explain</b> why a simple observation occurred.</p> <p><b>Evaluate</b> the effectiveness of observations.</p>	<p><b>Explain an observation or an event in scientific terms.</b> Distinguish between what has been observed and why it happened. Begin to link evidence from secondary sources as well as primary.</p> <p>Suggest improvements.</p>		<p>Identify evidence that has been used to support or refute ideas.</p>	
<b>QUESTIONING</b>	<p><b>Ask simple questions</b> about what they wonder and are curious about. This may stem from child interests discovered during child-initiated activities or through observations and experiences of the environment.</p>	<p><b>Ask questions</b> and know some can be answered using scientific enquiry.</p>		<p><b>Identify scientific questions.</b> ie can be investigated through scientific enquiry.</p>		<p><b>Raise scientific questions</b> and <b>hypothesise</b></p>	